Rock Outcrop Management Project

Introduction

The cliff and rock outcrop areas of Shenandoah National Park are some of the largest in the region and contain myriad significant vegetation communities and rare plant and animal populations (Ludwig et al., 1993). Intense use of these areas by hiking, climbing and camping enthusiasts has led to severe degradation of vegetation and soils at some cliff sites, including impacts to rare species and communities (Hilke, 2002).

Park sign inviting visitors to a view point on a sensitive rock outcrop.

Management Needs

The Park must protect the sensitive natural resources on rock outcrops and cliffs while still providing opportunities for visitor enjoyment of these popular recreational areas (Shenandoah National Park, 2003). Responsible decisions about how to best protect resources and manage visitor use on rock outcrops and cliffs can not be made without first compiling information on the location, resources composition, and visitor use impacts present. The Rock Outcrop Management Project (ROMP), 2005 – 2008, has funded resource and recreation use assessments at rock outcrop areas throughout the park, and will culminate in the completion and implementation of a cliff management plan to mitigate current impacts and direct the future management of fragile cliff areas.

Current Procedures

The Rock Outcrop Management Project is a comprehensive 4- year effort from 2005 – 2008 to address the challenges facing rock outcrop areas in the Park. Funding for the first three years of the project was provided by the Natural Resources Preservation Program (NRPP).

Field survey work associated with the Rock Outcrop Management Project (ROMP), began in 2005 and was completed in 2007. A draft environmental assessment document was prepared in September 2007. The final environmental assessment is scheduled to be released for public review in the Fall of 2008.

Endemic plant community on a rock outcrop.

What We Have Learned

The majority of ROMP funding was used to complete natural resource inventories and to assess visitor use and impacts at the project's 50 study sites. An assessment of human use and impact found that 40% of sites exhibited moderate to severe human impacts in the form of social trails, campsites, rock graffiti, trash, and soil & vegetation damage. The majority of impacts to rock outcrop natural resources were from day use activities including hiking and vista viewing. However two sites, Little Stony Man and Old Rag Mountain, were shown to have significant rock climbing use, and areas of impact caused by rock climbing activities.

It was also found that 96% of the 50 ROMP sites had significant natural resource occurrences. Botanical findings included nine globally rare plant communities, two of which are endemic to SHEN, six previously undescribed lichen species, and 21 state rare plant species. The two communities endemic to the park are the High-Elevation Greenstone Barren, and the Central Appalachian Mafic Boulderfield. All known occurrences of the High-Elevation Greenstone Barren community collectively cover less than 10 acres. The long- term viability of this vegetation community depends entirely on future events in the Park.

Though lichen surveys were done at only five sites, they resulted in identification of approximately 90 taxa, 38 of which were new to the Park's lichen list. In addition to the six previously undescribed lichen species, surveys identified seven lichen species not previously documented

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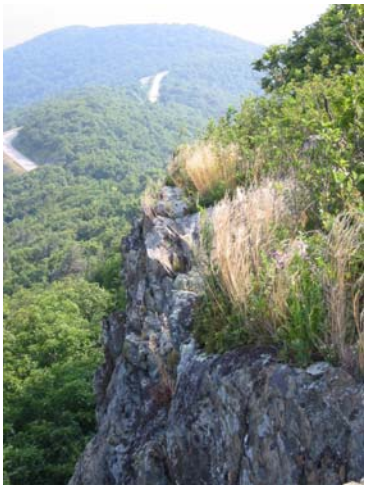
in Virginia. The 21 rare plant species identified through ROMP surveys were represented by 76 populations distributed among 31 study sites. Rare lichens and vascular plants had a strong boreal influence, and many species are significantly disjunct from the nearest northern populations.

Invasive exotic plants were present at 36% of ROMP study sites. The thirteen invasive species identified through survey work were primarily herbaceous, with Canada bluegrass (Poa compressa), and sheep sorrel (Rumex acetosella) the most frequently occurring. Greenstone outcrops are the most heavily impacted by exotic plant invasion.

Zoological survey work focused on conducting invertebrate inventories. A total of 763 invertebrate species were identified, with many additional specimens identified to the genus or family level. The presence of the federally endangered Shenandoah salamander (Plethododon shenandoah), and the state threatened Peregrine falcon (Falco peregrinus) were confirmed at several rock outcrops sites. Zoological inventory work also discovered 10 new rare animal populations including the state rare small footed myotis (Myotis lebii), and seven state rare invertebrate species.



Outcrop cliff with vegetation growing up the edge of the cliff.

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Public field meeting on Old Rag Mountain.